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Schuyler County Resident's Attitudes Towards Growth Management Policies in the Time of Natural Gas and Other Energy Developments

Sebastian Lippez-De Castro
Pontificia Universidad Javeriana

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SCHUYLER COUNTY RESIDENTS' ATTITUDES TOWARDS GROWTH
MANAGEMENT POLICIES IN THE TIME OF NATURAL GAS AND OTHER ENERGY
DEVELOPMENTS

BY

SEBASTIAN LIPPEZ-DE CASTRO

BA, Pontificia Universidad Javeriana, 2005
Specialist, Pontificia Universidad Javeriana, 2007

CAPSTONE PROJECT

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State University of New York
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Kristina Lambright
Assistant Professor
Department of Public Administration
May 11, 2012

Nadia Rubaii
Associate Professor
Department of Public Administration
May 11, 2012

Daniel Hautaniemi
Executive Director
Cornell Cooperative Extension Schuyler County
May 11, 2012

Executive Summary

As the wind farms industry grows in the region and the State of New York decides whether to allow natural gas drilling by using hydrofracking, these energy industries could create challenges in Schuyler County. As a result, local government officials need to know the opinions of their residents in order to propose and adopt regulations that not only enhance their ability to address the challenges created by the aforementioned industries but also reflect the interests of the community.

In order to learn about the views of Schuyler County residents regarding land use developments associated with the natural gas drilling and wind farms industries, residents of the Town of Ca tharine participated in two focus groups and responded to a survey . As a result of my data analysis, I identified that participants have the following attitudes towards land use developments associated with the energy industry. First, participants prefer to maintain the status quo, encouraging the use of land for agriculture and single family residences; second, although participants tend to disapprove of hydrofracking, they are more supportive of wind farms development; third, participants also tend to disapprove of developments explicitly associated with hydrofracking; fourth, participants have either mixed or favorable opinions regarding other types of developments; fifth, participants tend to support local governments playing a role in regulating land use developments associated with the energy industry, but disagree on the content and scope of such regulations; sixth, other communities' experiences and the absence of identifiable benefits for the community may explain participants' disapproval of natural gas development, while further research should explore whether the character of the place where an individual is raised, whether urban or rural, influences attitudes towards energy development; and seventh, differing opinions on the natural gas issue may be causing conflict among residents.

Based on the findings of this study, four recommendations are presented, three of which are directed to Schuyler County officials and the last of which is intended for other local governments. I recommend that Schuyler County officials, first, share this study's findings with the Town of Catharine legislative and planning boards so that participants' insights may be considered when these bodies frame, adopt and update comprehensive planning documents and land use regulations. Second, Schuyler County officials are encouraged to replicate this exercise in other municipalities. And, third, they also could encourage municipalities to implement strategies to cope with the conflict among residents generated by the natural gas issue. Finally, I also recommend that in updating and adopting their own land use regulations, other local governments facing the impacts from energy developments could use this study as a template for gathering insights from their own communities.

Dedication

To my wife, her patience, support, love, and professional advice have been an invaluable contribution to my studies. She deserves all my admiration and respect for having the courage of living this adventure with me.

To my daughter, whose smile revitalizes me every day.

To my parents in Colombia, without their help I had not been able to walk the path of studying abroad.

To Lucia's family, they also supported me largely during these years.

To public administrators accepting the task of working in local governments, their work keeps communities alive.

Acknowledgments

I would like to thank to Mr. Timothy O'Hearn -Schuyler County Administrator- and Mrs. Danielle Hautaniemi –Cornell Cooperative Extension Schuyler County Executive Director- for allowing me to work with them and facilitating my research.

I also would like to thank Professor Nadia Rubaii for her recommendations and guidance during the research process.

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Problem Statement

The energy industry may create challenges in Schuyler County. Schuyler County has 18,343 inhabitants (U.S. Census Bureau, 2010) and is divided into eight towns in which there are four villages. The county is located upstate New York in a region where the power industry has witnessed a boost of new wind farms, such as those placed in the towns of Cohocton, Howard, and Prattsburg, and where the industry it is expected to keep growing (Southern Tier Central Regional Planning and Development Board, & the Planning Departments of Chemung, Schuyler, and Steuben Counties [STCRPDB], 2011). In addition, the County is situated on the Marcellus and Utica shales, two unconventional geological formations from which it is possible to extract natural gas by using a recently-developed drilling technique that combines both High-Volume Hydraulic Fracturing and horizontal drilling. This type of drilling is commonly known as “hydrofracking” (New York State Department of Environmental Conservation [NYSDEC], 2011). Figure 1 shows the location of Marcellus and Utica shales in the Appalachian Basin of the eastern United States.

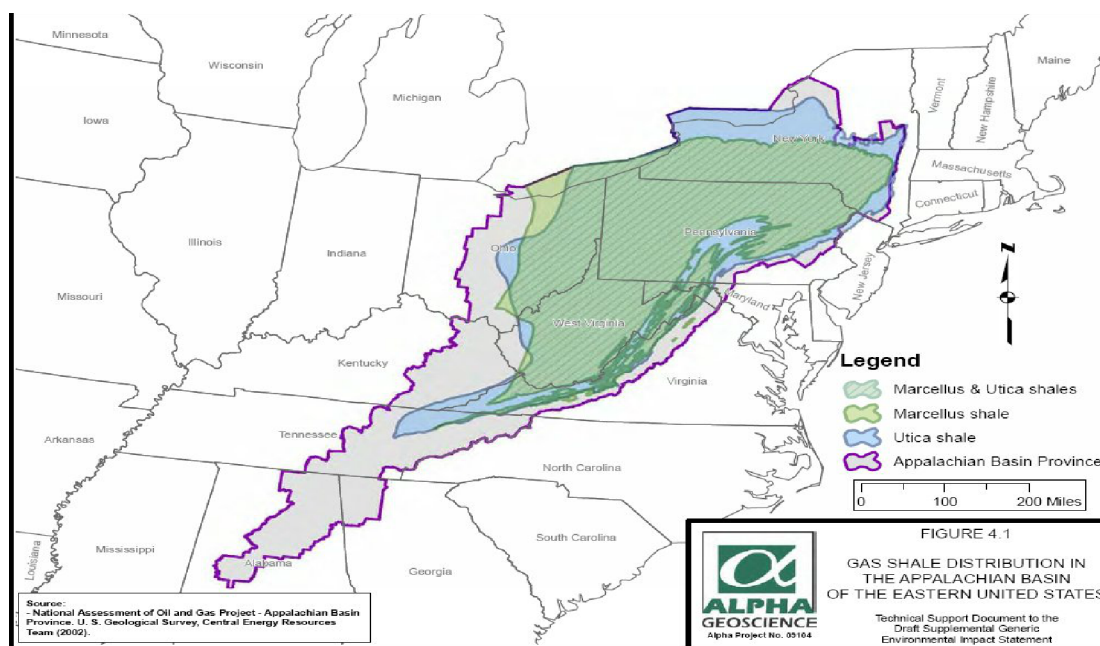


Figure 1. Location of Marcellus and Utica shales in the Appalachian Basin of the eastern United States (NYSDEC, 2011).

Whether or not to authorize the use of hydrofracking is currently under debate, but the State could approve it in the following months. As a result, local government officials need to know the opinions of county residents in order to propose and adopt regulations that not only reflect the interests of the community but also enhance their ability to address the challenges created by the aforementioned industries.

In particular, Schuyler County public managers will have to deal with the impacts that stem from the influx of newcomers to the community on the use of the land and roads. There are no data available specific to Schuyler County, but in the case of the nearby Broome County it is estimated that 4000 wells may represent around 16,272 new jobs (NYSDEC, 2011). Many of these jobs would be given to those with specific expertise in hydrofracking or wind energy, and these newcomers to the community will need places to park, lodge, eat, and entertain. The increase in local employment would only be temporary since these types of projects require considerably fewer employees during later phases. Thus, new employees will tend to occupy short-term housing such as hotel rooms, inns, and mobile homes (Jacquet, 2011). Hence, an increase in residential, commercial, and industrial uses of the land may be expected, as well as the need to regulate noise, lighting, and the integration of the new areas (STCRPDB, 2011). It is also anticipated that traffic congestion will increase and that the condition of local roads, bridges, and culverts would suffer; which can be confirmed by the experience from Bradford County, PA, where truck traffic patterns and violations of local roads' regulations have increased dramatically since hydrofracking began (Pennsylvania Department of Transportation, 2010). Finally, it is anticipated that new employees will choose to live close to their workplaces, commute through the shortest routes, and engage in other activities close to their worksites. As a result, communities in which natural gas drilling and other energy-related developments take place also would have to plan for ancillary

consequences in terms of new parking areas, hotels, mobile home courts, stores, restaurants, storage yards, traffic congestions, truck routes, and emergency management routes.

In coping with the aforementioned challenges, land use regulations and planning documents play a critical role. Local governments can manage the growth originating from the energy industry through the adoption of traditional zoning, incentive zoning, floating zoning, site plan reviews, general standards, special use permits, subdivision regulations, stormwater management regulations, noise and lighting ordinances, specific measures aiming to avoid visual contamination, and host community agreements (STCRPDB, 2011). In addition, updated local land use regulations, laws, policies, and plans are critical because under the current policy proposal they will allow local governments to take part not only in the process of issuing permits to extract natural gas by using hydrofracking, but also in the process of issuing permits to construct compressor stations and pipelines, key features in the transportation of natural gas (NYSDEC, 2011; New York State Public Service Commission, 2008). When these documents do not exist or are not current, local governments will not be able to participate effectively in such processes or regulate the consequences from energy developments.

Unfortunately, such documents either do not exist or were adopted before hydrofracking and wind farms were even considered in Schuyler County. The comprehensive plan adopted in 2004 did not take into account energy matters (Schuyler County 2004 Planning Commission, 2004). Additionally, two out of eight towns in Schuyler County are missing their comprehensive plans, five have not adopted zoning and subdivision regulations, and four have no plan site reviews. In the case of the Town of Catharine, on which this study focuses, the municipality is missing both a comprehensive plan and site plan reviews (STCRPDB, 2011). Thus, Town's and County's planning documents should be adopted or

updated taking into account the impact of hydrofracking and wind farms on land and road uses.

Updating and adopting these documents, however, require that county and municipal officials know the opinion of residents so that policies not only will enhance their ability to cope with the challenges created by the energy-industry but also will reflect residents' desires. In that context, this project seeks to understand the currently unknown attitudes of residents of Schuyler County towards growth management policies associated with the natural gas and other energy-related industries. Specifically, the project collects data on the views of residents from the Town of Catharine in order to address the following questions: (1) Are residents inclined to support or disapprove land use developments associated to the energy industry? (2) What are the residents' beliefs regarding the role of their local governments in managing the impacts from the natural gas drilling and wind farms activities? (3) In which areas do residents believe that land use developments should be either encouraged or discouraged by their local governments?

Addressing these questions is critical not only for the Town of Catharine and Schuyler County, but it will also inform public managers in other communities throughout the state of New York that are facing similar challenges. Several localities in the Southern Tier Central Region, for instance, have not adopted or updated planning documents, and results of this study could help them plan for energy related developments. Overall, this exercise may provide insights to public administrators in communities facing the effects from energy developments.

In the following section, this report presents a review of the literature on residents' attitudes towards growth management policies. I then describe the methodology used to investigate the views of the residents in the Town of Catharine. Finally, I detail my findings and make recommendations for Schuyler County officials and other local governments.

Literature Review

Growth management policies focus on maximizing the benefits of the developments while coping with the consequences of growth on the environment and on the life of the residents (Perin, 1977) through the adoption of land use regulations that organize the kind and level of growth and growth's costs, location, volume, and other features (Porter, 1997). Initially, local governments utilized zoning to allow commercial, residential, or industrial uses within specific areas. The second generation regulations comprise more recently-used tools such as development impact fees and comprehensive planning (Feiock, 2004). Today, land use regulations are instrumental in helping a community achieve its vision established in comprehensive planning processes through either encouraging or discouraging certain land uses. Two distinct approaches, the rational planning model and the class bias or exclusionary approach, have been used to investigate the reasons leading communities to adopt growth management policies. I also discuss other factors identified in the literature as possibly predicting the adoption of growth management policies. For each of these approaches and explanations, a description of the research is followed by an explanation of how this concept was incorporated into this study.

The Rational Planning Model

The first approach, the rational planning model, argues that "growth controls are understood to result from the objective problems associated with previous growth experience" (Logan & Zhou, 1990, p. 120). In that sense, a city's sprawl and increase in density rates would determine the adoption of growth controls. However, while some research indicates that previous growth affects the adoption of growth controls (Diaz & Green, 2001; Pratt & Rogers, 1986; Protash & Baldassare, 1983; Rosenbaum, 1978), others have disputed these findings (Logan & Zhou, 1990; Maurer & Christenson, 1982). Besides

actual growth rates, residents' and decision makers' perceptions on previous growth also explain the adoption of growth management policies (Anglin, 1990; Smutny, 1998).

Also consistent with the rational planning model, research indicates that the adoption of growth management measures differs among urban, suburban, metropolitan and rural settings. For example, less urbanized counties tend to establish fewer policies to limit growth than more urbanized jurisdictions (Steel & Lovrich, 2000). Consistent with this, research on Wisconsin municipalities found that cities and villages tend to implement more growth management measures than towns, and that towns located in metropolitan areas tend to implement more growth policies (Diaz & Green, 2001). In addition, the character of the place where an individual is raised, whether urban or rural, also affects that individual's attitudes towards certain policies. For example, urban-raised residents tend to support more environmentally-sensitive measures than rural-raised residents (Clendenning, Field & Kapp, 2005).

The rational planning model was applied in the design of this study but not in the way that this model has traditionally been applied in past research. Instead of considering previous growth rates, this study aims to identify whether residents associate the need of regulating growth with the possibility of future growth. In particular, this study explores whether residents' perceptions regarding previous growth in municipalities where energy developments have taken place affect their attitudes towards growth management policies. Additionally, the study attempted to examine whether residents' attitudes towards growth management policies vary based on the level of urbanization in the municipality in which they live and on the character of the place in which they were raised. But unfortunately due to this study's small sample size, it was not possible to explore these issues in the data analysis.

The Class Bias or Exclusionary Approach

The second approach, the class bias or exclusionary model, suggests that land-use or growth control measures are reflections of the struggle between different groups of interests throughout the community, thus they reflect political decisions regarding “who gets what” (Feiock, 2004). By imposing limits to the availability and types of houses, as well as by increasing the costs associated to certain uses; those measures ultimately produce segregation (Feiock, 2004; Logan & Zhou, 1990). As a result, this approach argues that communities' socio-demographic and economic characteristics explain the adoption of growth management policies and the attitudes of their residents towards land use policies.

Research based on this approach has generated varied and so metimes conflicting findings. For example, research indicates that although communities' socio-economic status and social homogeneity do not explain the adoption of growth management policies, a community's proportion of white collar residents does (Baldasarre & Protash, 1982). Others have found that, although the implementation of growth controls does not explain whether cities are richer or poorer, it explains that cities are becoming less black (Donovan and Neiman, 1995). Additional research indicates that counties with healthier economies tend to regulate growth more than those with higher rates of unemployment (Donovan & Neiman, 1995; Steel & Lovrich, 2000), although localities with higher unemployment tend to support more sustainable initiatives (Saha, 2009). Regardless of the mixed empirical results, this perspective is instrumental in explaining that individuals' attitudes not only change over time but also across social subgroups (Chapin & Connerly, 2004).

For the purpose of this study, this approach is utilized to explore whether residents' concerns regarding segregation, exclusion, or equitable access to benefits originating from new developments mediate in their attitudes towards growth management policies. It can also

be applied to look at the variations in the attitudes of residents from different social subgroups.

Other explanations

In addition to the two major models described above, there are four other factors identified in the literature as possible predictors of the adoption of growth management policies. First, institutional-related explanations such as the incidence of state mandates for the adoption of growth management policies, local governments' bureaucratic capacity, the form of local government, and the local political culture (Saha, 2009; Steel & Lovrich, 2000) are identified as possible explanations for local growth management policies. Assessing these kinds of explanations, however, extends beyond the scope of this study. Second, residents' length of residency may play a role. Scholars have argued that newcomers tend to support growth management policies aiming to preserve current assets and the environment, whereas long-time residents would support land use developments aiming to increase job opportunities in the area (Egan & Luloff, 2000; Green, Marcouiller, Deller, Erkkila & Sumathi, 1996; Halfacree & Boyle, 1998; Halseth, 1998; Spain, 1993). Third, residents' perceptions regarding the need to protect the environment or provide affordable housing also could affect their attitudes towards the implementation of growth management policies (Smutny, 1998). And, finally, landowners/homeowners' attitudes regarding growth management policies may be affected by the plans they have for their properties; at the same time, growth management policies may affect landowner's plans for their properties (Bollens, 1990; Clendenning, Field & Kapp, 2005).

Based on this research, this study explores whether residents' length of residency, concerns regarding the environment or providing affordable housing, and landowners/homeowners' plans for their properties play a role in shaping residents' attitudes towards growth management policies. The study also intended to identify whether there are

differences between landowners' and renters' attitudes, an issue that has received little attention from researchers. But unfortunately due to this study's small sample size, it was not possible to explore this issue in the data analysis.

As this section suggests, there are numerous aspects that should be considered in order to fully comprehend why communities decide whether to adopt a given growth management policy. As a result, gaining a deeper understanding of the context in which each community implements its policies is important (Logan and Zhou, 1990).

Methodology

The literature reviewed: (1) identifies several factors used by researchers to explain the adoption of growth management policies, (2) indicates that findings are mixed, and (3) recommends gaining a deeper understanding of the context in which communities implement growth management policies (Logan & Zhou, 1990). Based on this research, I decided to adopt a mixed methods approach using focus groups and a survey to answer my research question (Creswell, 2009). In particular, the study explores Schuyler County residents' attitudes towards land use changes associated with the energy industry by focusing on the Town of Catharine, one of the two municipalities in the County that are missing comprehensive plans and one out of the four municipalities without site plan reviews. Initially, I was planning to conduct my research on the Town of Hector, where there are no zoning regulations, subdivision regulations, or site plan reviews. But shortly before I was going to collect my data, there was a discussion between residents at a community meeting in the Town of Hector that escalated to a level requiring the involvement of police officers. As a result of this incident, I changed the setting for my research. Therefore, after approval from the Institutional Review Board (see Appendixes A and B), residents of the Town of Catharine were invited to take part in the research. Figure 2 details the administrative division of

Schuyler County into its eight towns and four villages, and highlights the Town of Catharine. This section explains the rationale in identifying participants, the data collection procedures, the data analysis approach, and the strengths and limitations of the study.

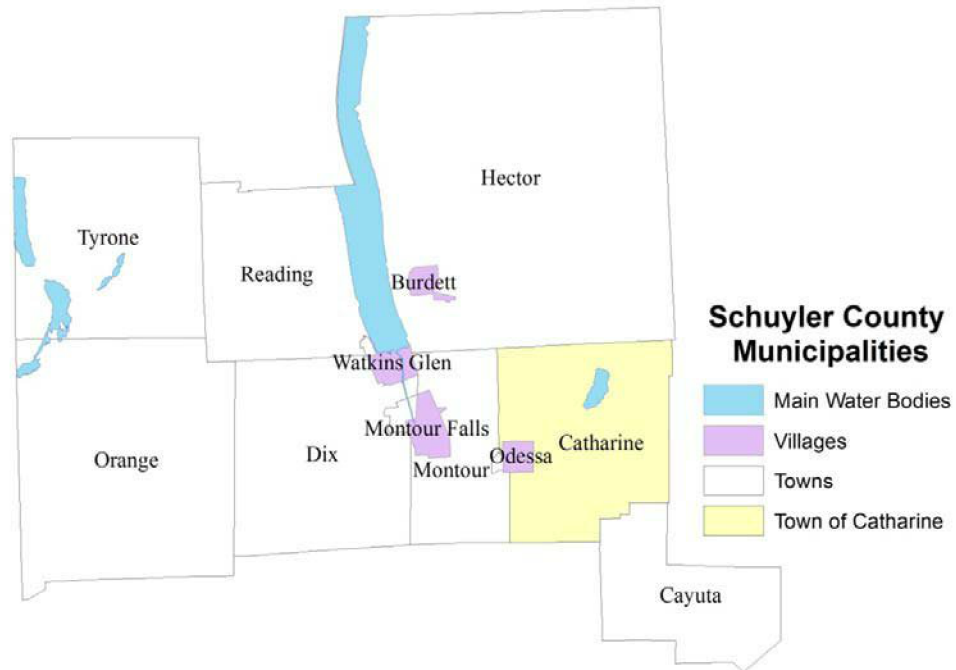


Figure 2. Schuyler County municipalities. Subsequent maps do not include the names of the municipalities in order to better visualize additional features. This map and subsequent maps were created in ArcGIS using layers of boundaries, roads, water bodies, state parks, and the National Finger Lakes Forest Park provided by Cornell Cooperative Extension Schuyler County upon request.

Participants

In identifying participants, Cornell Cooperative Extension Schuyler County identified 48 potential individuals who had participated in previous activities held by this organization and sent them invitations via email. These individuals were 18 years of age or older and reside in the Town both within and outside the Village of Odessa. The purpose of reaching

participants from the Village and the Town was to follow the literature's comparisons of residents' attitudes in urban versus rural settings. Home ownership was not required for participants to be selected. The purpose of avoiding the use of home ownership as a criterion to select participants was so that I could explore the gap in the literature about differences between the attitudes of home/landowners and renters. In total, 20 residents of the Village and 28 individuals who reside outside the village were invited to participate. Members of the municipal council, local government officials, and other residents who hold public offices were excluded for two reasons. Because their opinions are known, including them would not have offered the potential to provide new insights from the community. Additionally, there was concern that their participation could influence other residents' behavior and opinions during the sessions. Invitees had the option of attending the session scheduled for residents from the same jurisdiction, either the village of Odessa or outside the village of Odessa, or attending a joint meeting for residents from both jurisdictions. According to their preferences, participants registered to attend one of the sessions. Participants did not receive any payment or compensation for their participation.

Data Collection

Surveys. Participants who attended the focus groups facilitated on April 4th and 10th were asked to answer a 15 to 20 minutes survey before the focus groups began, and invitees who could not attend the sessions were asked to respond to the survey via email by April 14th. All of them were instructed to answer the questionnaire only after carefully reading the informed consent. The consent document explained that confidentiality was guaranteed and only aggregated data would be included in the final report. In addition to demographic information, the survey asked closed questions regarding:

- The character of the place where the respondent was raised
- Whether they owned or rented their homes

- Landowners' plan for their properties
- Attitudes towards natural gas companies and wind farms companies
- Opinions on local governments' role regarding land use developments associated with the energy industry, and
- Opinions on whether the following various land use developments or activities associated with the energy industry should be either encouraged or discouraged by local governments. Specifically, respondents were asked to indicate support or opposition to: multifamily homes, single family homes, mobile home areas, hotels, inns, hostels, temporary housing facilities for industry employees, mixed commercial and residential uses, commercial areas, commercial uses associated with the energy industry, agricultural districts, construction, manufacturing, drilling, industrial storage yards, production of asphalt, parking, roads, and water sales.

The survey questionnaire was accompanied by maps of Schuyler County and the Town of Catharine so that participants were able to identify where various land uses should be either encouraged or discouraged by their local governments. Maps were created using a scale in which responses are not associated to specific parcels but to broad areas. Maps also were created so that survey respondents were able to place their answers according to the location of other features of the County such as main roads, parks, and lakes. Informed consent and survey questionnaires are included in Appendix C.

Overall, fifteen residents responded the survey, seven (46.7%) of them were women, only one (6.7%) resided in the Village of Odessa, and the remainder lived outside the Village of Odessa. All respondents indicated that they were whites and owners of the place where they reside. All of the participants were older than 34: four (26.7%) were between the ages of 35 and 49, six (40%) were between 50 and 64, and five (33.3%) were 65 or older. Nonetheless, survey respondents do not represent the population and their answers cannot be

generalized. Out of the 1,762 inhabitants of the Town of Catharine, the sample did not include the 326 residents (23.7% of adults) between the ages of 18 and 34. In addition, while 591 residents (33.5%) live in the Village of Odessa, only one Village resident participated. And, although 157 out of the 825 residences (19%) are occupied by 373 renters (21% of the population), no renters participated (U.S. Census Bureau, 2010).

Focus groups. While four of the survey respondents did not attend the focus group sessions and were sent the survey questionnaire via email, the other eleven survey respondents attended to either the session scheduled for Town residents on April 4th or the session scheduled for both Town and Village residents on April 10th. Both sessions were scheduled at 6:00 p.m. Despite the fact that the focus group for residents of the Village scheduled on April 5th at a location in the Village, none of the invitees decided to attend. Both focus groups lasted for about one hour and started only after the oral consent informed was read and the attendants agreed to participate. Confidentiality was not guaranteed, but sessions were not tape-recorded and participants were encouraged to keep confidential what was discussed. A standardized questionnaire was used in order to facilitate comparisons across groups, although some variation in the focus and dynamics in the discussions was allowed. In particular, key topics covered in the focus groups included:

- The characteristics of the Town and County and the residents' vision for their territory
- The impacts of hydrofracking and wind farms
- Local governments' role and capability to cope with the challenges created by the energy industry.

Throughout the sessions, the facilitator took notes on a table created according to the topics mentioned above and the subsequent questionnaire. The oral informed consent script, the focus group questionnaire, and the note-taking instrument are included in Appendix D.

Data Analysis

Once focus groups and surveys were completed, three different techniques of analysis were utilized. First, notes taken during the focus groups were reviewed to find commonalities and differences in residents' opinions regarding hydrofracking and wind farms. Notes from the focus groups were also useful in pinpointing particular types of developments that participants would like or would not like to see in the future. Notes were also used to identify common or rare opinions on the role that local governments should play in order to manage the challenges created by the energy industry. In addition, notes taken during the focus groups were used to find evidence on themes discussed in the literature. For instance, these notes were used to analyze the role of residents' perception on other municipalities' previous growth in shaping their attitudes. These notes were also used to explore whether residents' concerns regarding issues of segregation, threats to the environment, and the need to provide affordable housing play a role in shaping their attitudes.

Second, survey results were analysed using descriptive statistics. Complete descriptive statistics of the survey results can be found in Appendix E. Descriptive statistics detail demographic information about the participants and help to identify specific land uses that residents believed should either be encouraged or discouraged by local governments. In addition, cross tabulation was used to gain a sense of whether certain factors discussed in the literature, such as having an urban background, influence respondents' attitudes towards growth management policies in the case studied.

Finally, survey questions asking respondents to point out locations of their top land uses that should be either encouraged or discouraged were analysed by using the Kernel density function in ArcGIS. A density function shows the "frequency of objects within a given radius", and this function "spreads the magnitude of the [observations] over an area.... [providing for a] more realistic modelling of the distribution [of] cases" (Price, 2012, p. 219).

The density analysis resulted in a series of maps that were useful in identifying land uses about which residents have strong opinions, and in exploring the extent to which respondents had similar preferences regarding the location of the different land use developments. The scale of the maps was the same used in the survey in order to reflect actual responses, and the radius used to conduct the density analysis was chosen to better visualize the extent to which responses tend to be clustered.

Strengths and Limitations

As was explained earlier, the fact that the study uses mixed methods and combines both focus groups and a survey allows for a deeper understanding of the local context. In addition, not one but three different techniques of analysis were used to analyze the data. Moreover, Schuyler County has not yet systematically surveyed community residents on their attitudes toward proposed energy developments so this study has the potential to provide new insights into community views on these topics.

By contrast, the scarce number of survey responses does not represent the attitudes of the Town residents in general. Thus, it was not possible to conduct inferential statistics. Because almost all of the survey respondents are residents of the Town but not of the Village, own property, and plan to keep their properties for their own residence, it was also not possible to explore the role that place of residence, home ownership, and owners' plans for their properties had in shaping residents' attitudes.

Findings

Thematic analysis, descriptive statistics, and spatial analysis indicate that:

1. Participants prefer to maintain the status quo, encouraging the use of land for agriculture and single family residences.
2. Although participants tend to disapprove of hydrofracking, they are more supportive of wind farms development.

3. Participants also tend to disapprove of developments explicitly associated with hydrofracking.
4. Participants have either mixed or favorable opinions regarding other types of developments.
5. Participants in this research tend to support the role that local governments play in regulating land use developments associated with the energy industry, but disagree on the content and scope of such regulations.
6. Other communities' experiences and the absence of identifiable benefits for the community may explain participants' disapproval of natural gas developments, while further research should explore whether the character of the place where an individual is raised, whether urban or rural, influences attitudes towards energy development.
7. The study suggests that the natural gas issue may be causing conflict among residents.

Each of these findings is discussed in greater detail below with references to illustrative maps and other data which supports the finding.

Finding #1: Participants prefer to maintain the status quo, encouraging the use of land for agriculture and single family residences.

Focus group participants were asked to identify the main characteristics of their Town and County, as well as what things they would like to see and things they would not like to see in the following five to ten years. One of the groups brainstormed the following as the main characteristics of the area: clean air, quietness, lakes, nice views, and an isolated location. These features, said one participant, make the area "a nice place to live." In one focus group participant's words, "it is a pleasant region." Furthermore, four residents said they chose to live in the area because of these characteristics. Then, in identifying things they would like to see, four participants of one of the sessions pointed out their interest in keeping the rural character of the area. Moreover, three focus group participants identified the county

as a conservative one where people resist change. One more asked “is it too much to ask for things to stay as they are?,” and another said that he/she does “not like to see any industrial activity, no matter whether it is temporary or permanent.” In addition, two of residents emphasized that they would like to see more single family residences, and four said they would like see that agriculture is encouraged. Consistent with this, 80% of the survey respondents believe that their local governments should encourage single family homes, and 93.3% were supportive of local governments’ attempts to encourage agricultural uses and districts. Figure 3 shows that survey respondents want local governments to encourage agricultural uses of land throughout the Town of Catharine. The map of areas where survey respondents think that single family residences should be encouraged by their local governments shows a similar trend and is placed in Appendix F.

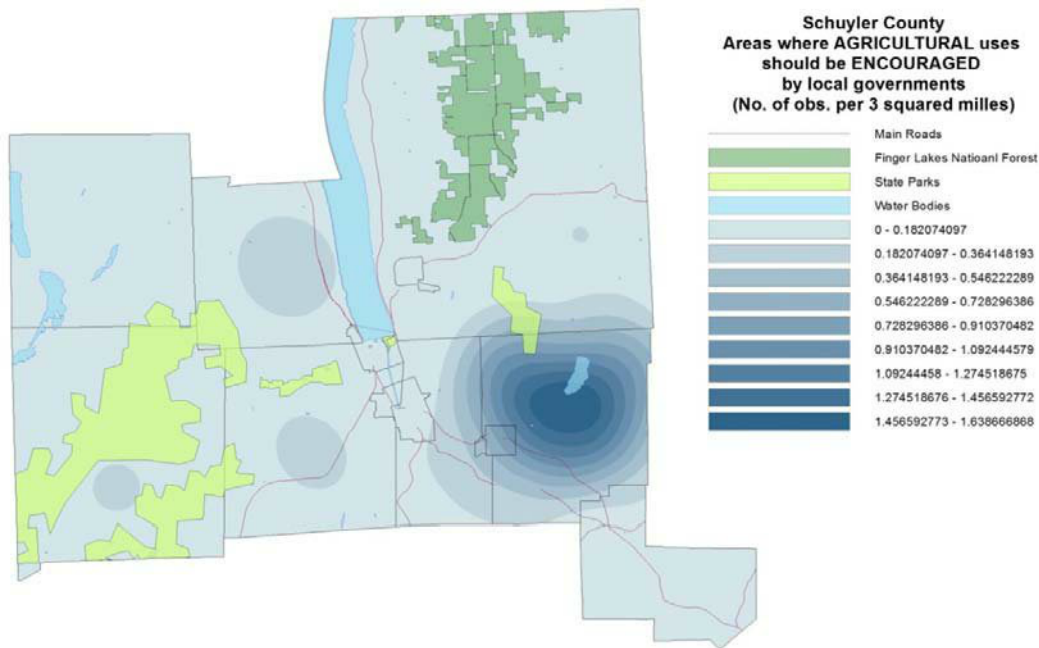


Figure 3. Schuyler County, areas where agricultural uses should be encouraged by local governments. Darker regions indicate that more survey respondents’ answers fall within that area.

Finding #2: Although participants tend to disapprove of hydrofracking, they are more supportive of wind farms development.

In answering the question about things they would not like to see in the future, five focus group participants just answered “fracking,” but 10 of the 11 focus group participants indicated that they do not want hydrofracking in their community. Consistent with this, 66.7% of the survey respondents said to think that local governments should discourage drilling. Figure 4 presents a map where survey respondents identified areas throughout the County where local governments should discourage drilling. Although darker areas indicate that more survey respondents’ disapprove of drilling in the Town of Catharine, survey respondents also believe that local governments should discourage drilling in areas where natural assets such as water bodies and parks are located. This is consistent with literature that suggests that support towards growth management policies is related to residents’ perceptions regarding the need to protect the environment (Smutny, 1998).

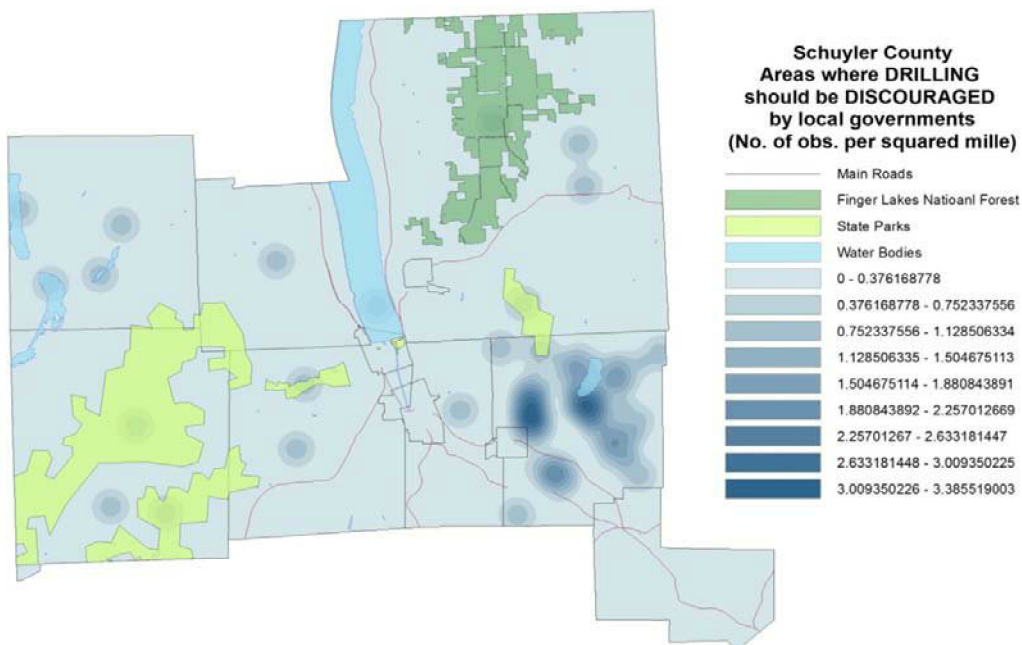


Figure 4. Schuyler County, areas where drilling should be discouraged by local governments.

Darker regions indicate that more survey respondents’ answers fall within that area.

Only one individual in one of the focus groups supported hydrofracking and mentioned positive information about it such as opportunities for making new profits and particular measures to avoid undesirable ancillary consequences. Another focus group participant mentioned the fact that vertical drilling is already happening in the County and said that, as opposed to hydrofracking, continuing this type of drilling would be fine. The same participant later acknowledged that while he was opposed to hydrofracking, he would welcome it if it would pay him enough to pay for his taxes.

As opposed to the general opposition against hydrofracking, participants were more supportive of wind farms development. Without being asked about it, one focus group participant and two survey respondents explicitly said they were in favor of wind farms with the focus group participant even stressing that hydrofracking and wind farms “are fundamentally different.” In addition, fewer survey respondents disapproved of the wind farms industry than disapproved of hydrofracking. Table 1 details what survey respondents would do if a natural-gas-drilling or a wind farm company expressed an interest in developing their properties. And as indicated in that table, the percentage of survey respondents who would reject an offer from a natural gas company without consideration is identical to the percentage of survey respondents who would either think about it or immediately accept an offer from a wind farm company.

Table 1: Facing an offer from an energy-related company to develop their activities on my property, my answer would be...

	From a wind farm company (n=15)	From a natural gas company (n=15)
I have already leased my property to a company	0 (0)	0 (0)
Reject the offer without consideration	26.7% (4)	73.3% (11)
I would think about it	66.7% (10)	26.7% (4)
Accept it immediately	6.7% (1)	0 (0)

Finding #3: Participants also tend to disapprove of developments explicitly associated with hydrofracking.

In addition to disapproving of hydrofracking, survey respondents also disapprove of other developments associated with such industry. For example, 73.3% of the survey respondents think that local governments should discourage temporary housing facilities for industry employees, and 66.7% think the same about commercial uses associated to the energy industry, industrial storage yards, production of asphalt, and water sales. Figure 5 presents areas where survey respondents consider that local governments should discourage temporary housing facilities for industry employees. Maps of areas where survey respondents think that commercial uses associated with the energy industry, industrial storage yards, production of asphalt, and water sales should be discouraged are placed in Appendix G.

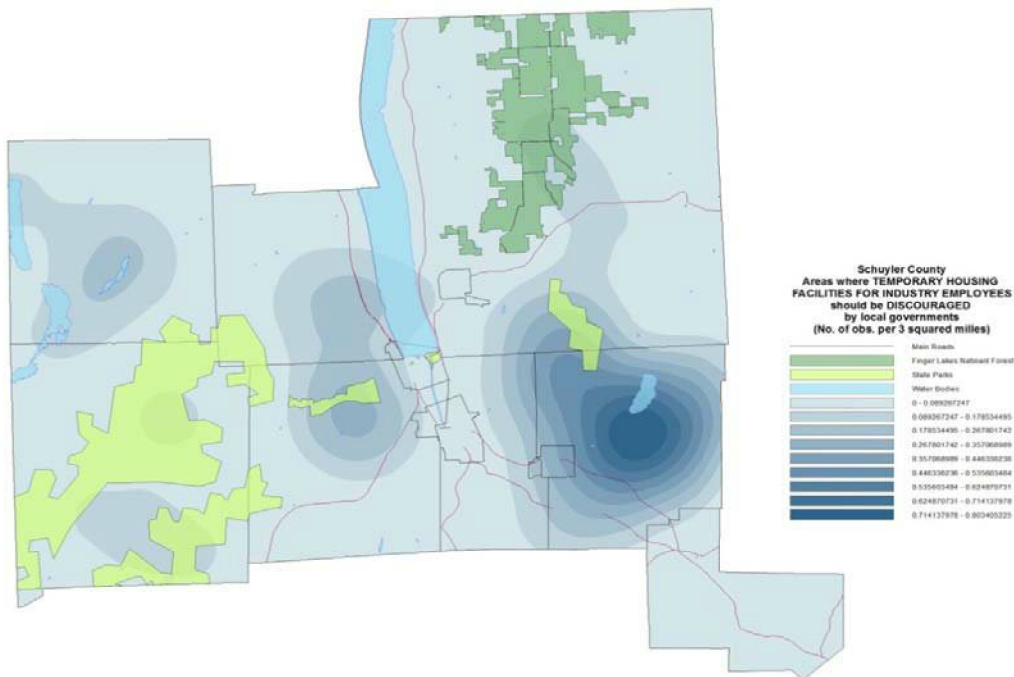


Figure 5. Schuyler County, areas where temporary housing facilities for industry employees should be discouraged by local governments. Darker regions indicate that more survey respondents' answers fall within that area.

Finding #4: Participants have either mixed or favorable opinions regarding other types of developments.

As opposed to their attitudes towards hydrofracking and its obvious consequences, survey respondents were more supportive of other types of developments. They had mixed opinions regarding certain kinds of land use developments and had favourable opinions of other land use developments. On one hand, when it comes to multifamily homes, mobile homes areas, construction, manufacturing, and parking, survey respondents' opinions appear divided. Table 2 shows survey respondents' mixed opinions on whether these land use developments should be either encouraged or discouraged by local governments.

Table 2. Mixed opinions regarding land use developments that should be either encouraged or discouraged by local governments (n=15)

Land use Development	Multifamily homes	Mobile home areas	Construction	Manufacturing	Parking
Encouraged	40.0%	40.0%	53.3%	40.0%	40.0%
Discouraged	33.3%	33.3%	26.7%	33.3%	33.3%
No response	26.7%	26.7%	20%	26.7%	26.7%

On the other hand, survey respondents supported increasing the number of commercial areas, areas for mixed commercial and residential uses, hotels, inns, hostels, and roads. Table 3 highlights survey respondents' support towards these land use developments and Figure 6 specifically presents the map of the areas where survey respondents consider that mixed commercial and residential uses should be encouraged by their local governments.

Table 3. Supportive opinions regarding land use developments that should be either encouraged or discouraged by local governments (n=15)

Land use Development	Commercial areas	Mixed commercial and residential uses	Hotels, Inns, Hostels	Roads
Encouraged	53.3%	80.0%	73.3%	60.0%
Discouraged	6.7%	6.7%	20.0%	26.7%
No response	40%	13.3%	6.7%	13.3%

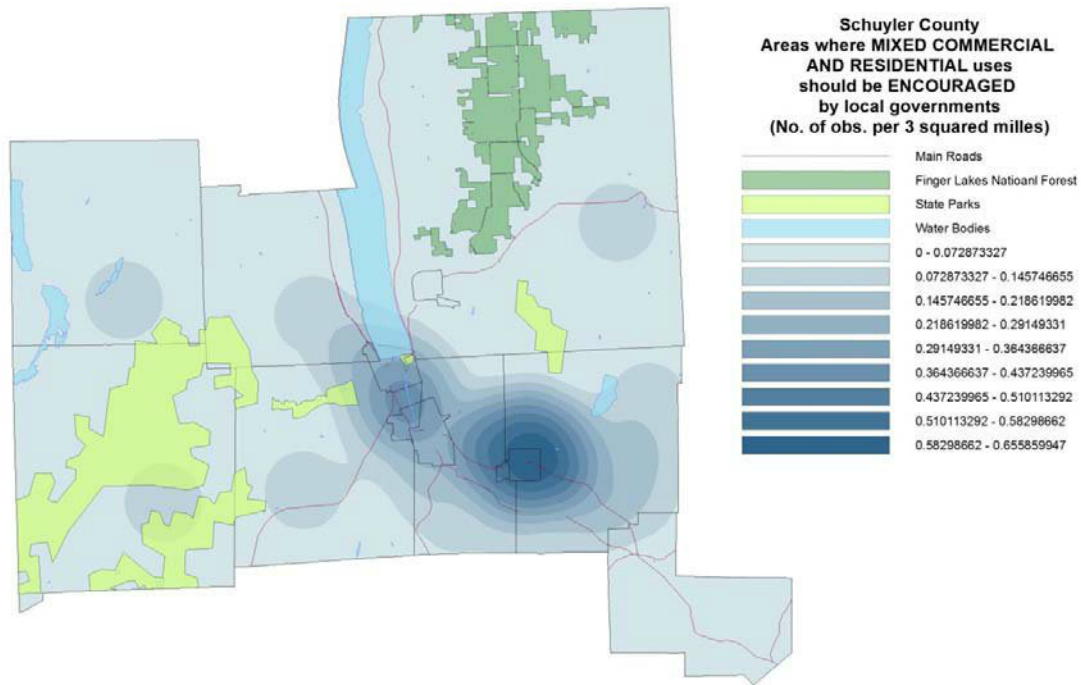


Figure 6. Schuyler County, areas where mixed commercial and residential uses should be encouraged by local governments. Darker regions indicate that more survey respondents' answers fall within that area

Although all of these developments are influenced by the natural-gas-industry, results seem to indicate that residents would support them as long as they are not associated with the energy industry.

Finding #5: Participants in this research tend to support local governments playing a role in regulating land use developments associated with the energy industry, but disagree on the content and scope of such regulations.

Although participants think that local governments should play a role in dealing with the energy-industry, they do not agree on what that role could be and on whether local governments would actually be capable of either making or implementing certain decisions. A total of 86.6% of survey respondents believe that, in regards to land use developments

associated with activities of the energy industry, their local governments should take some sort of action, none said that the government should do nothing, and 13.3% did not answer the question. In the case of the focus group participants, one of them pointed out the importance of the local governments' role by highlighting that "local governments are neighbours deciding on neighbours' lives." Another mentioned that the comprehensive planning process was a means to accomplish what residents want to achieve or to prevent actions residents want to avoid.

Nonetheless, there is no agreement on the specific role that local governments should play. Two focus group participants emphasized that local governments should do "anything they can do" in order to avoid hydrofracking, and two more specified banning hydrofracking as a possible measure. By contrast, 33.3% of the survey respondents think that land use developments associated with the energy industry should be discouraged by their local governments, while 13.3% believe that these developments should be encouraged, and 40% think that these developments should be neither encourage nor discouraged, but regulated by local governments. Indeed, one survey respondent was "supportive of any monitored growth in the area." In addition, two survey respondents indicated that the kind of decisions made by local governments should depend on the type of energy development.

Finally, there were mixed feelings with respect to the scope of the decisions and the regulations that should be adopted by local governments. Focus group participants brainstormed the following several means to manage the challenges from the natural gas industry including: zoning, enforcing environmental regulations, regulating limits to trucks' weight, and establishing setbacks from developments to roads. However, focus group participants were doubtful about the effectiveness of such measures. For example, in answering a question regarding what local governments can do to prevent actions in their Town, one of the focus group participants said "nothing." Another mentioned that natural-

gas-drilling companies budget to pay fines for their trucks' violations of weight limits. A third participant suggested that history indicates that, despite residents' interests, companies always do what they want to do regardless of local regulations. The second focus group was, in general, very pessimistic about the local governments' ability to regulate the challenges created by the natural gas industry. Indeed, one of the participants made clear that s/he is writing his/her letters to the state instead to the local authorities.

Only one focus group participant said that local governments should not regulate the energy industry. In fact, this individual argued that developments in the neighbour Town of Hector occurred due to the absence of regulations and suggested that new individuals in the area could offer new business opportunities for locals. The literature finds that residents, particularly long-time ones, tend to support land use developments instead of regulations in order to increase job opportunities in the area (Egan & Luloff, 2000; Green, Marcouiller, Deller, Erkkila & Sumathi, 1996; Halfacree & Boyle, 1998; Halseth, 1998; Spain, 1993). In this case, however, only one individual suggested that local governments should avoid regulating land use developments.

Finding #6: Other communities' experiences and the absence of identifiable benefits for the community may explain participants' disapproval of natural gas developments, while further research should explore whether the character of the place where an individual is raised, whether urban or rural, influences attitudes towards energy development.

Based on my data analysis, three reasons emerged that could explain the aforementioned participants' attitudes: other communities' experiences, the absence of identifiable benefits for the community, and the character of the place where participants were raised. First, focus groups participants frequently mentioned other communities' experiences in order to justify their opinions. Four focus group participants discussed cases of

municipalities facing problems associated with trucks, health concerns, real state values, and crime issues due to hydrofracking activities in different States. Three of these participants specifically mentioned events in the State of Pennsylvania. Another focus group participant commented on the history of the battle between corporations and communities, although no particular cases were offered as examples. This is consistent with research that finds that since growth management policies result from a community's previous growth (Logan & Zhou, 1990), residents' and decision makers' perceptions on previous growth are instrumental in explaining the adoption of current growth management policies (Anglin, 1990; Smutny, 1998). As a result, focus groups participants' perceptions regarding the consequences of the natural gas industry in other communities could explain their disapproval of hydrofracking in their own community. One participant summarized this perspective by recalling someone from Pennsylvania warning: "Do not think your community is going to be the same."

Another reason why participants in my study may oppose natural gas development is the absence of identifiable benefits for the community. In both focus groups, participants had difficulty in identifying benefits for the community as a result of natural gas development in the region. For the most part, participants identified negative consequences, although one participant mentioned that more taxes could be collected. Another suggested that local businesses could benefit, one more mentioned that infrastructure and roads could be improved by the industry, and a final participant suggested that residents could earn money by receiving royalties. However in each instance in which a benefit was mentioned, new arguments were offered against the natural gas industry. For example, when the possible benefit of receiving more taxes from companies was mentioned, another focus group participant reported being suspicious of how the industry would affect the value of his/her property and how the real state market in general could be affected. One focus group

participant suggested that new businesses could be created and “someone could open a bar,” but another replied sarcastically that a “gentleman’s club” also could be open. Other participants who mentioned that hydrofracking could benefit local businesses noted that while a waitress may be benefit by receiving tips from more clients, at the same time she would need that money to pay higher rent rates. Another focus group participant emphasized the temporary character of hydrofracking and, therefore, suggested that improvements in infrastructure and roads would be al so temporary. In addition, when one focus group participant mentioned that residents could receive royalties, another replied by stressing that only “those [owners] with enough acreage could make a worthy deal” and would receive the benefits from the industry. This type of concern is consistent with the literature that suggests that growth management policies may create different groups of residents because these policies determine “who gets what” (Feiock, 2004; Logan & Zhou, 1990).

Finally, further research should explore whet her the character of the place where an individual is raised, whether urban or rural, influences attitudes towards energy development. The number and diversity of participants in this research do not allow any conclusions to be drawn regarding this issue, but there is some anecdotal evidence to suggest some support for the literature. While there were only two s urvey respondents who were raised in urban settings, both believe that local governments should discourage all of the following activities: drilling, industrial storage yards, production of asphalt, water sales, increased of mobile home areas, parking and roads. O n the other hand, rural-raised residents were divided in their preferences regarding these land use developments. Moreover, these two urban-raised residents also indicated that if they were given an offer from either a wind farm or a natural gas company to develop their property, they would reject that offer. Once again, rural-raised survey respondents were divided in their answers to this hypothetical situation. Appendix H provides a contingency table summarizing these results. The limited number of urban-raised

survey respondents, however, impedes the ability to further analysing or making conclusions in this regard. Nevertheless, it may be worth researching this issue further since research also suggests that the place where individuals are raised, whether urban or rural, may influence residents' attitudes towards certain kinds of policies. For example, Clendenning, Field and Kapp (2005) find that urban-raised residents tend to support more environmentally-sensitive measures than rural-raised residents.

Finding #7: The natural gas issue may be causing conflict among residents.

Beyond the participants' attitudes towards certain land use developments and towards the role of local governments in managing growth, this research suggests that the natural gas issue may be causing conflict among residents. As explained earlier, the research setting had to be changed from one town to another due to a discussion between residents at a community meeting that became so heated that police officers had to intervene. Reaction by the focus group participants also demonstrates that the topic is very sensitive for residents. At least four of the participants expressed their views in a very passionate manner, and one of them constantly asked questions to show "frustration" stemming from others' lack of opposition to hydrofracking. In the first focus group session, one participant commented that "hydrofracking is dividing our communities and even our families." In the following session, participants were asked about the extent to which they agreed with this statement, and no one disagreed with the statement. In addition, when focus group participants were asked how often they discussed energy policy issues with their neighbours, one participant clarified that s/he only talks about this with those s/he has spoken before and share similar opinions. Another focus group participant said that s/he does not talk about it with anyone because "this is like politics or religion."

Recommendations

As the wind farms industry grows in the region and the State of New York decides whether to allow natural gas drilling by using hydrofracking, local governments will rely on land use regulations to implement growth management policies that not only allow them to address the challenges created by the energy industry but also reflect the interests of the community. This study, therefore, used two focus groups and a survey in order to learn the views of Schuyler County residents, in particular from residents of the Town of Catharine, regarding land use developments associated with the energy industry. Based on the findings of this study, four recommendations are presented, three of which are directed to Schuyler County officials and the last of which is intended for other local governments. I recommend that Schuyler County officials, first, share this study's findings with the Town of Catharine legislative and planning boards so that participants' views may be considered when these officials are framing, adopting and updating comprehensive planning documents and land use regulations. Second, Schuyler County officials are encouraged to replicate this exercise in other municipalities. And, third, they also could encourage municipalities to implement strategies to cope with the conflict among residents generated by the natural gas issue. Finally, I also recommend that in updating and adopting their own land use regulations, other local governments facing the impacts from energy developments could use this study as a template for gathering insights from their own communities.

Recommendation #1: Provide this study's findings to the Town of Catharine legislative and planning boards so that participants' insights may be considered when these bodies frame, adopt and update comprehensive planning documents and land use regulations.

As discussed in the problem definition, comprehensive planning and land use regulations will be critical in managing the challenges created by the natural gas and wind farms industries. This study's data on the views of the Town of Catherine residents regarding

land use developments associated with the energy industry should be considered along with other sources of information in order to gain a complete understanding of residents' visions. In particular, this study should be shared with Town officials, as well as with legislature and planning boards.

When adopting or updating comprehensive planning documents and land use regulations, Town of Catharine officials should specifically consider that:

- Participants in this study prefer to the status quo, encouraging the use of land for agriculture and single family residences: 80% of the survey respondents believe that their local governments should encourage single family homes and 93.3% supported local governments' attempts to encourage agricultural uses and districts.
- Participants in this study tend to disapprove of hydrofracking, but were more supportive of wind farms development. While 73.3% of survey respondents would reject an offer from a natural gas company to drill on their properties without consideration, 73.3% of survey respondents would either think about or immediately accept an offer from a wind farm company. Survey respondents believe that local governments should discourage hydrofracking throughout the Town and County, as well as in those areas where certain natural assets such as parks and lakes are located. Residents' support towards land use regulations may result from their concerns regarding the environment (Smutny, 1998).
- Participants in this study also tend to disapprove of developments explicitly associated with hydrofracking: 73.3% of the survey respondents think that local governments should discourage temporary housing facilities for industry employees, and 66.7% think the same regarding commercial uses associated with the energy industry, industrial storage yards, production of asphalt, and water sales.

- Participants in this study have either mixed or favorable opinions regarding other types of developments. While their preferences are divided on whether local governments should encourage or discourage multifamily homes, mobile home areas, construction, manufacturing and parking, they tend to support increasing commercial areas, mixed commercial and residential areas, hotels, inns, hostels and roads.
- Finally, participants in this research tend to support local governments playing a role in regulating land use developments associated with the energy industry, but disagree on the content and scope of such regulations.

Recommendation #2: Replicate this exercise in other municipalities.

By replicating this type of exercise in the rest of Schuyler County municipalities, county officials will gain a better understanding of the residents' attitudes throughout the county. Gaining such an understanding residents' attitudes across municipalities is important because coping with the challenges created by the energy industry will require county-wide and even regional approaches. The impacts of energy developments do not respect jurisdictional boundaries of individual local governments. Thus, replicating this exercise is an opportunity to collect local insights that may be considered for county-wide and/or regional endeavours. In addition, since participants in this study disagree on whether to encourage or discourage certain land use developments as well as on the content and scope of local land use regulations, residents in each municipality within Schuyler County may also have different attitudes towards land use developments associated with the energy industry. In replicating this exercise, officials should try to include participants from populations that were not included in this research such as renters, young adults, and residents across municipalities. The literature suggests that residents' attitudes towards growth management policies vary across social subgroups and according to the type of municipality (Chapin &

Connerly, 2004; Steel & Lovrich, 2000), and although it was not possible to explore such differences in this study, future endeavours could incorporate these groups.

Recommendation #3: Encourage municipalities to implement strategies to cope with the conflict among residents generated by the natural gas issue.

Throughout the research process, it was evident how sensitive is the natural gas issue in the area. As noted earlier, the location of the study had to be changed due to an incident between neighbours in the Town of Hector. In addition, focus group participants warned that hydrofracking is “dividing our community and our families,” and that “it is like politics or religion.” As such, municipalities should take actions aimed at coping with the conflicts created by hydrofracking. It may be helpful to involve several members of the community, including personnel from the Police Department, local justices, council members, and members of planning boards in this process.

Recommendation #4: In updating and adopting their own land use regulations, other local governments facing the impacts from energy developments could use this study as a template to gather insights from their own communities.

This study could be helpful for other local governments facing similar challenges created by the energy industry. The mixed methods approach helps to gain a deeper understanding of residents' views and the density spatial analysis allows participants to identify specific locations where they believe local governments should act regarding land use developments. That information could be used in planning processes, as well as for designing, adopting or updating land use regulations.

Conclusion

Wind farms and hydrofracking industries could create challenges in Schuyler County, and both comprehensive planning documents and land use regulations will play a

critical role in helping the jurisdiction cope with these challenges. This research provides insights into residents of the Town of Catharine attitudes' towards land use developments associated with the energy industry. Its findings and recommendations may be considered by local government officials in framing, adopting and updating comprehensive planning documents and land use regulations that allow them to address the challenges created by the energy industry and reflect the interests of the community. In updating and adopting their own land use regulations, other local governments facing the impacts from energy developments could also use this study as a template to gather insights from their own communities.

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Appendix A

Date: March 13, 2012

To: Sebastian Lippez-deCastro, CCPA

From: Anne M. Casella, CIP Administrator
Human Subjects Research Review Committee

Subject: Human Subjects Research Approval
Protocol Number: 1943-12
Protocol title: Schuyler County residents' attitudes towards growth management policies in the time of natural gas and other energy developments

Your project identified above was reviewed by the HSRRC and has received an Exempt approval pursuant to the Department of Health and Human Services (DHHS) regulations, 45 CFR 46.101(b)(2) .

An exempt status signifies that you will not be required to submit a Continuing Review application as long as your project involving human subjects remains unchanged. If your project undergoes any changes these changes must be reported to our office prior to implementation, using the form listed below: http://humansubjects.binghamton.edu/2009_Forms/012_Modification%20Form.rtf

Principal Investigators or any individual involved in the research must report any problems involving the conduct of the study or subject participation. Any problems involving recruitment and consent processes or any deviations from the approved protocol should be reported in writing within five (5) business days as outlined in Binghamton University, Human Subjects Research Review Office, Policy and Procedures IX.F.1 Unanticipated Problems/adverse events/complaints. We also require that the following form be submitted: <http://humansubjects.binghamton.edu/Forms/Forms/Adverse%20Event%20Form.rtf>

University policy requires you to maintain as a part of your records, any documents pertaining to the use of human subjects in your research. This includes any information or materials conveyed to, and received from, the subjects, as well as any executed consent forms, data and analysis results. These records must be maintained for at least six years after project completion or termination. If this is a funded project, you should be aware that these records are subject to inspection and review by authorized representative of the University, State and Federal governments.

Please notify this office when your project is complete by completing and forwarding to our office the following form: <http://humansubjects.binghamton.edu/Forms/Forms/Protocol%20Closure%20Form.rtf> Upon notification we will close the above referenced file. Any reactivation of the project will require a new application.

This documentation is being provided to you via email. A hard copy will not be mailed unless you request us to do so.

Thank you for your cooperation, I wish you success in your research, and please do not hesitate to contact our office if you have any questions or require further assistance.

Cc: file
Kristina Lambright

Diane Bulizak, Secretary
Human Subjects Research Review Office
Biotechnology Building, Room 2205
85 Murray Hill Rd.
Vestal, NY 13850
dbulizak@binghamton.edu
Telephone: (607) 777-3818
Fax: (607) 777-5025

Appendix B

Date: March 23, 2012

To: Sebastian Lippez-deCastro

From: Anne M. Casella, CIP Administrator
Human Subjects Research Review Committee

Subject: Modification Approval
Protocol Number: 1943-12
Protocol title: Schuyler County residents' attitudes towards growth
management policies in the time of natural gas and other energy developments

Your project modification, which involves the changes listed below, was reviewed by the HSRRC and has received an exempt approval pursuant to the Department of Health and Human Services (DHHS) regulations, 45 CFR 46.101(b)(2) .

1. Change involves moving the location of the study from the Town of Hector to the Town of Catherine, differentiating between residents from the Village of Odessa and the Town of Catherine outside the Village of Odessa
2. Changing the number of focus groups from four to three

An exempt status signifies that you will not be required to submit a Continuing Review application as long as your project involving human subjects remains unchanged. If your project undergoes any other changes, these changes must be reported to our office prior to implementation.

Please notify this office when your project is complete by completing and forwarding to our office the following
form: <http://humansubjects.binghamton.edu/Forms/Forms/Protocol%20Closure%20Form.rtf>
Upon notification we will close the above referenced file. Any reactivation of the project will require a new application.

This documentation is being provided to you via email. A hard copy will not be mailed unless you request us to do so.

Cc: file
Kristina Lambright

Diane Bulizak, Secretary
Human Subjects Research Review Office
Biotechnology Building, Room 2205
85 Murray Hill Rd.
Vestal, NY 13850
dbulizak@binghamton.edu
Telephone: (607) 777-3818
Fax: (607) 777-5025

Appendix C

Survey

Researcher: Sebastian Lippez-De Castro

Project: Schuyler County residents' attitudes towards growth management policies in the time of natural gas and other energy developments

Informed consent:

You are being asked to participate in this research because you are an 18 years of age or older resident of the Village of Odessa or of the unincorporated areas of the Town of Catharine and do not hold a public office position.

The session is part of Mr. Sebastian Lippez-De Castro's capstone project for his Master in Public Administration at Binghamton University. Last summer, Mr. Lippez-De Castro collaborated in the County Energy Task Force as an intern, and he now is conducting a research that aims to provide local government officials with useful insights from the community regarding residents' attitudes towards growth management policies in the time of natural gas and other energy developments. That way, findings could be added to the considerations in the design and adoption of land use regulations widely supported by the community.

We are asking all individuals recruited to participate voluntarily in a focus group to also voluntarily complete a survey in advance of their focus group. The survey takes around 20 minutes of your time. Your survey responses will be confidential, thus only the principal investigator will have access to the solved questionnaires, and only aggregated data will be released. Your decision whether or not to participate will not prejudice your future relations with Binghamton University or Cornell Cooperative Extension Schuyler County. Take into account that, if you decide to participate, you are not obligated to solve all questions, and may stop at any time.

If you have questions about the research you can reach Mr. Sebastian Lippez-De Castro at SLIPPEZ1@binghamton.edu or (607) 341-7689. If you have questions about your rights as a volunteer in research, or have questions, concerns, or complains, you can contact Binghamton University's Human Subjects Research Review Committee at (607) 777-3818.

You are making a decision whether or not to participate. By answering the questionnaire, you indicate that you have decided to participate having read the information provided above.

Survey Questionnaire

1. Where do you reside?

- ☐ The Village of Odessa
- ☐ The Town of Catharine outside the Village of Odessa

2. How long have you been residing in the Village/Town?

- ☐ Less than 1 year
- ☐ From 1 year to 3 years
- ☐ From 3 years to 5 years
- ☐ From 5 years to 10 years
- ☐ More than 10 years

3. Gender

- ☐ F ☐ M

4. Age

- ☐ 18-24
- ☐ 25-34
- ☐ 35-49
- ☐ 50-64
- ☐ 65 and over

5. Ethnicity

- ☐ Hispanic or Latino
- ☐ Not Hispanic or Latino

6. Race

- ☐ White
- ☐ African American
- ☐ Asian
- ☐ American Indian and Alaska Native
- ☐ Native Hawaiian and other pacific islander
- ☐ Some other race
- ☐ Two or more races

7. I consider the place where I was raised as:

- ☐ Urban
☐ Rural

8. You reside in a place that you:

- ☐ Rent (*if you choose this option please skip to question 10*)
☐ Own

9. If you are a landowner/homeowner,**9.1 What are your future plans for your property?**

- ☐ Keep it and reside in it myself
☐ Keep it and lease it for residential use
☐ Keep it and lease it for commercial purposes other than residency
☐ Sell it

Wind farms and natural gas drilling developments could take place in the region:

9.2 Facing an offer from a wind farm company to establish a wind farm on your property, what your answer would be?

- ☐ I have already leased my property to a wind farm company
☐ Reject the offer without considerations
☐ I would think about it
☐ Accept it immediately

9.3 Facing an offer from a natural gas company to drill in you property, what your answer would be?

- ☐ I have already leased my property to a gas drilling company
☐ Reject the offer without considerations
☐ I would think about it
☐ Accept it immediately

10. Do you consider that land use developments associated to activities of the energy-related industry, should be:

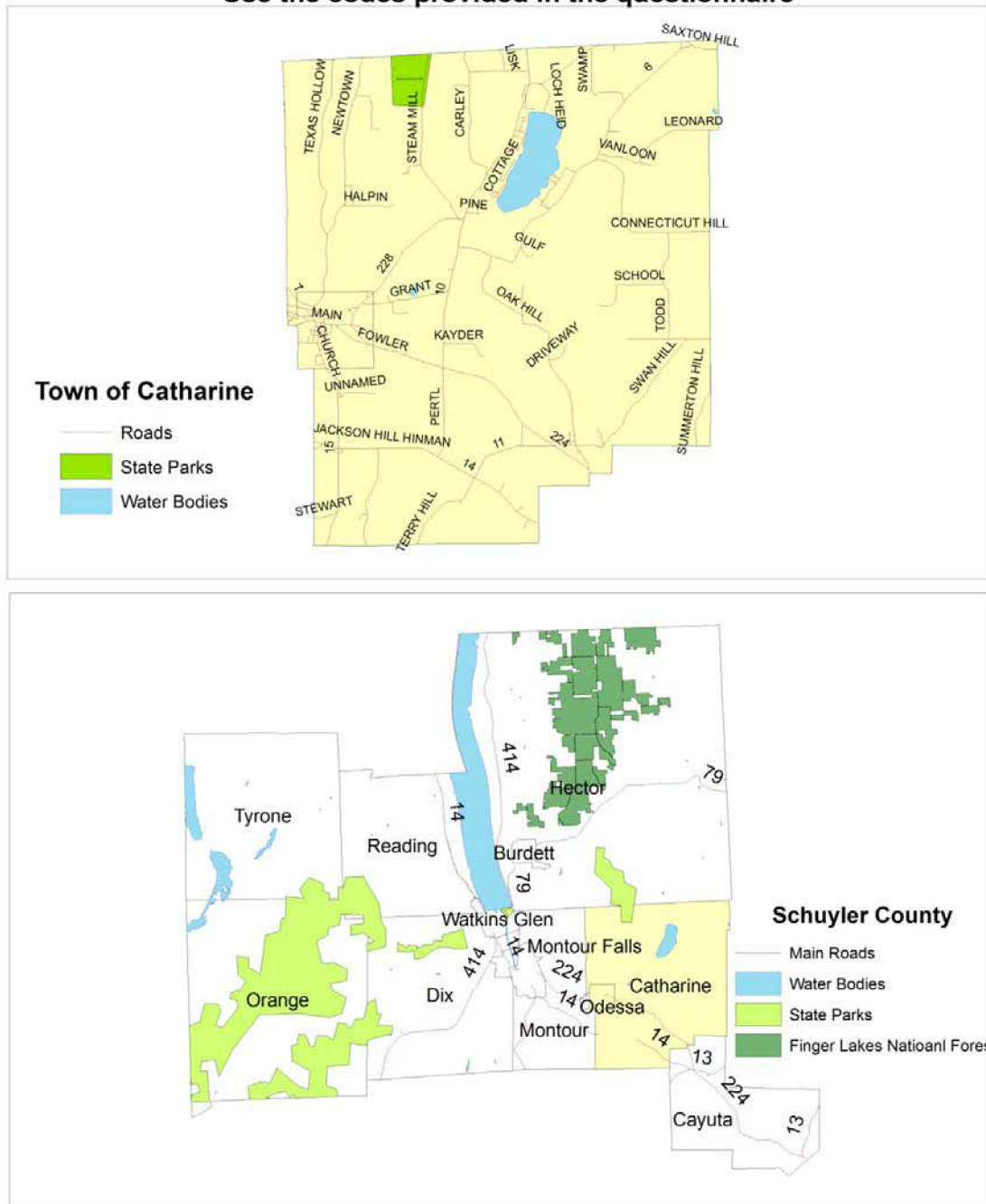
- ☐ Discouraged by local governments
☐ Encouraged by local governments
☐ Neither encouraged nor discouraged, but regulated by local government
☐ No action from local governments should take place in either sense

11. Do you think that the follo wing land uses should be either encouraged or discouraged by local governments (County, Town, or Village)? Please put an X in the appropriate box in front of every land use:

Potential Land-uses	CODE	Encourage	Discourage
Multifamily homes (apartment complexes, e.g.)	MC		
Single family homes (houses for one family)	SF		
Mobile home areas (Trailer homes, e.g.)	MH		
Hotels, inns, hostels	HI		
Temporary housing facilities for industry employees	TEMP		
Mixed commercial and residen tial uses (first floor shops, second floor apartments e.g.)	MIX		
Commercial areas (shops, stores)	COM		
Commercial uses associated to the energy industry	CEN		
Agricultural districts (farms, vineyards, e.g.)	AG		
Construction (lumber, cement, e.g.)	CONS		
Manufacturing (plants, factories e.g.)	MAN		
Drilling	DRL		
Industrial storage yards	STO		
Production of asphalt	ASP		
Parking	PRK		
Roads	RDS		
Selling water	WAT		

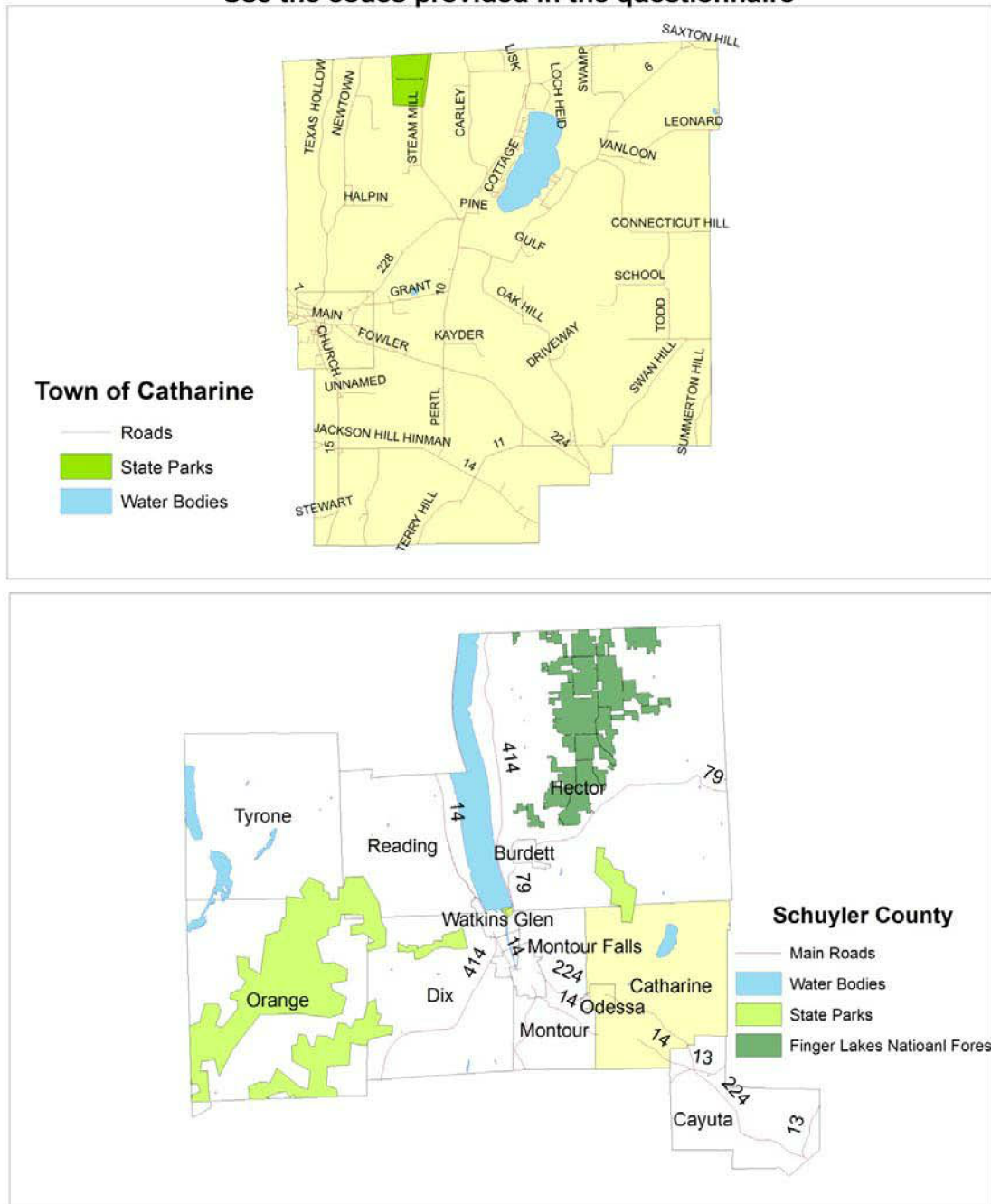
12. Please use the appropriate map provided in the attached sheet of paper to identify the location of your top 5 land u ses that should be encouraged by your local governments. Write down th e CODE of the land use to in dicate the point y ou selected. CODES were provided in the table of the previous question. Remember, while you can write down only five marks, they do not need to be all different.

On either of following maps,
locate your top 5 land uses that should be
ENCOURAGED
by your local governments.
Use the codes provided in the questionnaire



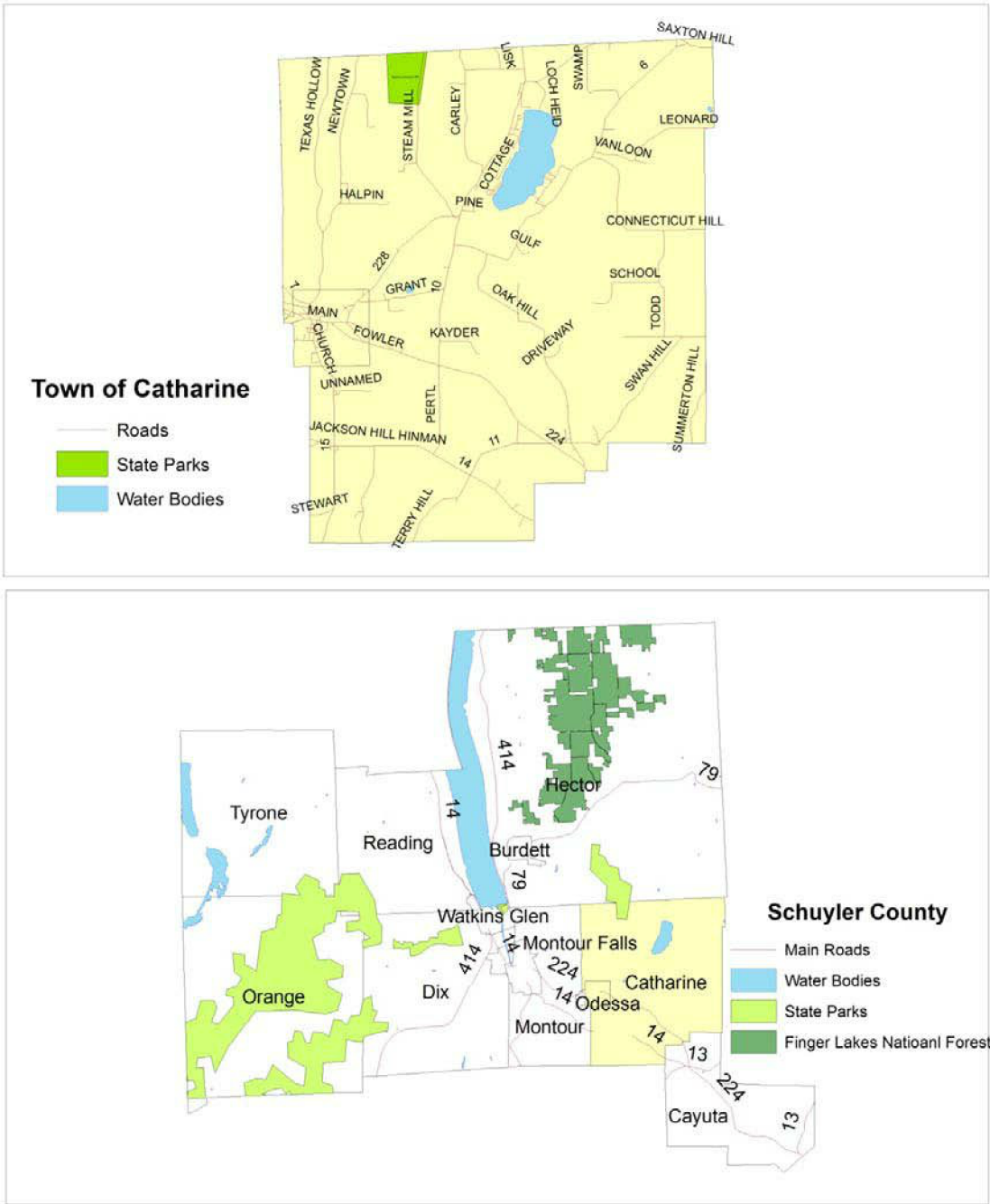
13. Please use the appropriate map provided in the attached sheet of paper to identify the location of your top 5 land uses that should be discouraged by your local governments. Write down the CODE of the land use to indicate the point you selected. CODES were provided in the table of the previous question. Remember, while you can write down only five marks, they do not need to be all different.

On either of following maps,
locate your top 5 land uses that should be
DISCOURAGED
by your local governments.
Use the codes provided in the questionnaire



14. Finally, also using the appropriate map, please write down the letter **R** on the place where your residency is located.

Please write down the letter R on the place where your RESIDENCY is located



Appendix D

Focus Groups Oral Informed Consent

Hello, my name is Sebastian Lippez-De Castro, I am a graduate student of the Master in Public Administration at Binghamton University. I am conducting this focus groups with residents of the Village of Odessa and the unincorporated areas of the Town of Catharine to understand Schuyler County residents' attitudes towards growth management policies in the time of natural gas and other energy developments. I expect to provide local government officials with useful insights from the community that could be added to the considerations in the design and adoption of land use regulations.

The focus group takes around 50 minutes of your time in which I will ask a series of open ended questions about your opinions and preferences in terms of local governments' land use policies. In looking for confidentiality, I am not recording this sessions, I am only going to take notes. In addition, your responses will be kept confidential, thus I will be the only one with access to the data, and only aggregated data will be released. However, I cannot guarantee total confidentiality because this is a sessions involving several participants. Therefore, I ask you to keep from sharing on the content of this session. Your decision whether or not to participate will not prejudice your future relations with Binghamton University or Cornell Cooperative Extension Schuyler County. Take into account that, if you decide to participate, you are not obligated to answer all questions, and you may stop at any time.

If you have questions about the research you can reach me at SLIPPEZ1@binghamton.edu or (607) 341-7689. If you have questions about your rights as a volunteer in research, you can contact Binghamton University's Human Subjects Research Review Committee at (607) 777-3818.

Do you want to participate in this focus group?

Do you have any questions about the focus group project?

May I proceed with the first question?

Questionnaire

1. If someone from out of town asks you to describe Schuyler County, and in particular Catharine/Odessa, which three things would you highlight?
2. When you think about the county's future, lets say 5 to 10 years ahead, and particularly when you think about the Town's/Village's future, what kind of things, different from the current ones, you would like to see? What kind of things you would not like to see but you think that could occur?
3. What do you think that local governments could do to avoid what you do not want to see and accomplish what you want to see?
4. As you all know, a few wind farms have been placed in neighbouring communities, and the natural gas industry also could initiate activities in the region. How do you think that each of these industries could impact your community? Both, positively and negatively.
5. What do you think the role of the county, town, and village governments in managing those impacts should be?
6. Local governments may use certain regulations either to encourage or discourage some of the land use developments derived from the energy industry (industrial storage, mobile home yards, multifamily complexes, more commercial areas, mixed commercial and residential areas, drilling, new industrial uses such as manufactures, etc.). Can you make a list with criteria local governments should use to adopt such regulations? Examples: reducing costs for entrepreneurship, reducing taxes, protection of the environment, providing affordable housing, promoting equity among residents, etc. Please discuss these examples, include other and try to agree on the three most important for you.
7. What particular measures or decisions do you think that local governments should adopt to protect the interests of the community while facing the challenges of land use developments? (Provide some examples) To what extent do you talk about these initiatives with your neighbours?

Wrap up with small evaluation about the activity (comments and final thoughts)

Note-taking instrument

	Q1 Describe the County and Town/Village, highlight 3 things.	Q2 Future, would like to see? What you don't like to see but are going to happen?	Q3 What LG could do to avoid what you do not want to see and accomplish what you want to see?	Q4 Wind farms and hydrofracking impacts on community - and +.	Q5 Roles of LG Village, Town and County	Q6 Criteria to adopt land use regs. Examples and 3 most important	Q7 Particular measures
	1.	LIKE:	To avoid:	Wind farms, negative:	V: T: C:	1.	
	2.	DO NOT LIKE:	To accomplish:	Wind farms, positive:	V: T: C:	2.	
	3.			Hydro, negative:	V: T: C:	3.	
				Hydro, positive:	V: T: C:		Discuss with neighbours??

QUOTES							
OPPOSITE OPINIONS							
CORPORAL LANGUAGE							
OTHERS							

Appendix E

Descriptive statistics (n=15)

Where do you reside?	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
The Village of Odessa	6.7%	1
The Town of Catharine outside of the Village of Odessa	93.3%	14
How long have you been residing in the Village/Town?	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Less than 1 year	6.7%	1
From 1 year to 3 years	0.0%	0
From 3 years to 5 years	0.0%	0
From 5 years to 10 years	20.0%	3
More than 10 years	73.3%	11
Gender	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Feminine	46.7%	7
Masculine	53.3%	8
Age	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
18-24	0.0%	0
25-34	0.0%	0
35-49	26.7%	4
50-64	40.0%	6
65 and over	33.3%	5
Ethnicity	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Hispanic or Latino	0.0%	0
Non Hispanic or Latino	100.0%	15
Race	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
White	100.0%	15
African American	0	0
Asian	0	0
American Indian and Alaska Native	0	0
Some other race	0	0
Two or more races	0	0
I consider the place where I was raised as	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Urban	13.3%	2
Rural	80.0%	12
Non response	6.7%	1
You reside in a place that you	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Rent	0.0%	0
Own	100.0%	15
What are your future plans for your property?	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>

Keep it and reside in it myself	93.3%	14
Keep it and lease it for residential use	0.0%	0
Keep it and lease it for commercial purposes other than residency	0.0%	0
Sell it	0.0%	0
Non response	6.7%	1
Facing an offer from a wind farm company to establish a wind farm on your property, what would your answer be?	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
I have already lease my property to a wind farms company	0.0%	0
Reject the offer without considerations	26.7%	4
I would think about it	66.7%	10
Accept it immediately	6.7%	1
Facing an offer from a natural gas company to drill on your property, what would your answer be?	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
I have already lease my property to a gas drilling company	0.0%	0
Reject the offer without considerations	73.3%	11
I would think about it	26.7%	4
Accept it immediately	0.0%	0
Do you consider that land use developments associated with activities of the energy-related industry, should be:	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Discouraged by local governments	33.3%	5
Encouraged by local governments	13.3%	2
Neither encouraged nor discouraged, but regulated by local governments	40.0%	6
No action from local governments should take place in either sense	0.0%	0
Non response	13.3%	2
Do you think that the following land uses should be either encouraged or discouraged by local governments?		
Multifamily homes (apartment complexes, e.g.)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	40.0%	6
Discouraged	33.3%	5
No response	26.7%	4
Single family homes (houses for one family)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	80.0%	12
Discouraged	0.0%	0
No response	20.0%	3
Mobile home areas (Trailer homes, e.g.)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	40.0%	6
Discouraged	33.3%	5
No response	26.7%	4
Hotels, inns, hostels	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	73.3%	11
Discouraged	20.0%	3
No response	6.7%	1

Temporary housing facilities for industry employees	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	6.7%	1
Discouraged	73.3%	11
No response	20.0%	3
Mixed commercial and residential uses (first floor shops, second floor apartments e.g.)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	80.0%	12
Discouraged	6.7%	1
No response	13.3%	2
Commercial areas (shops, stores)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	53.3%	8
Discouraged	6.7%	1
No response	40%	6
Commercial uses associated to the energy industry	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	13.3%	2
Discouraged	66.7%	10
No response	20%	3
Agricultural districts (farms, vineyards, e.g.)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	93.3%	14
Discouraged	0.0%	0
No response	6.7%	1
Construction (lumber, cement, e.g.)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	53.3%	8
Discouraged	26.7%	4
No response	20%	3
Manufacturing (plants, factories e.g.)	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	40.0%	6
Discouraged	33.3%	5
No response	26.7%	4
Drilling	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	20.0%	3
Discouraged	66.7%	10
No response	13.3%	2
Industrial storage yards	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	26.7%	4
Discouraged	66.7%	10
No response	6.7%	1
Production of asphalt	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	26.7%	4
Discouraged	66.7%	10

No response	6.7%	1
Parking	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	40.0%	6
Discouraged	33.3%	5
No response	26.7%	3
Roads	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	60.0%	9
Discouraged	26.7%	4
No response	13.3%	2
Selling water	<u>% of</u> <u>Respondents</u>	<u># of</u> <u>Respondents</u>
Encouraged	20.0%	3
Discouraged	66.7%	10
No response	13.3%	2

Appendix F

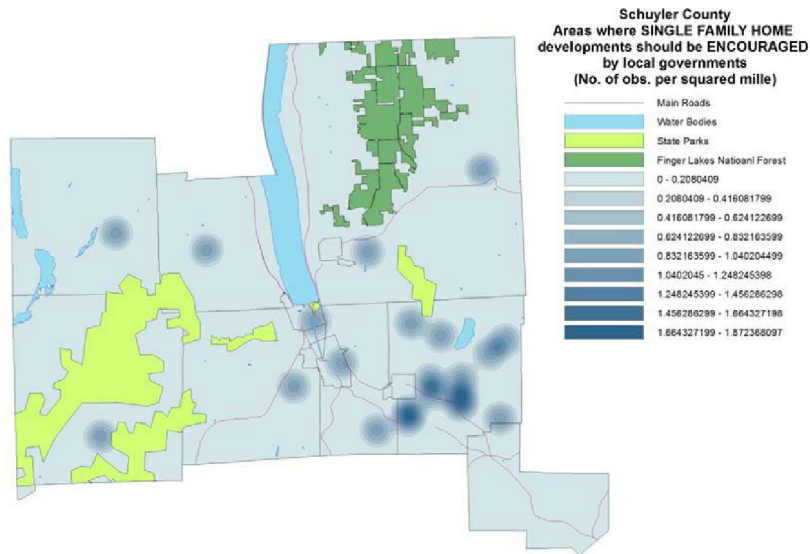


Figure F1. Schuyler County, areas where single family home developments should be encouraged by local governments. Darker regions indicate that more survey respondents' answers fall within that area.

Appendix G

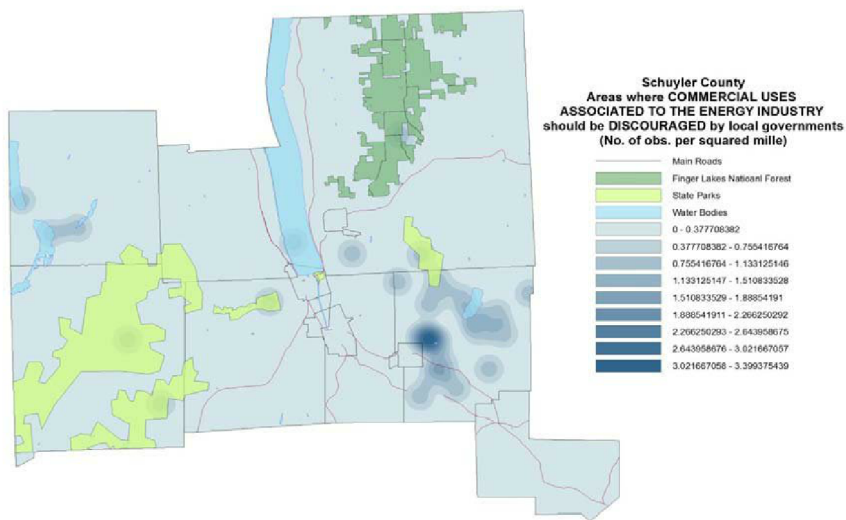


Figure G1. Schuyler County, areas where commercial uses associated to the energy industry should be discour aged by local governments. Darker regions indicate that more survey respondents' answers fall within that area.

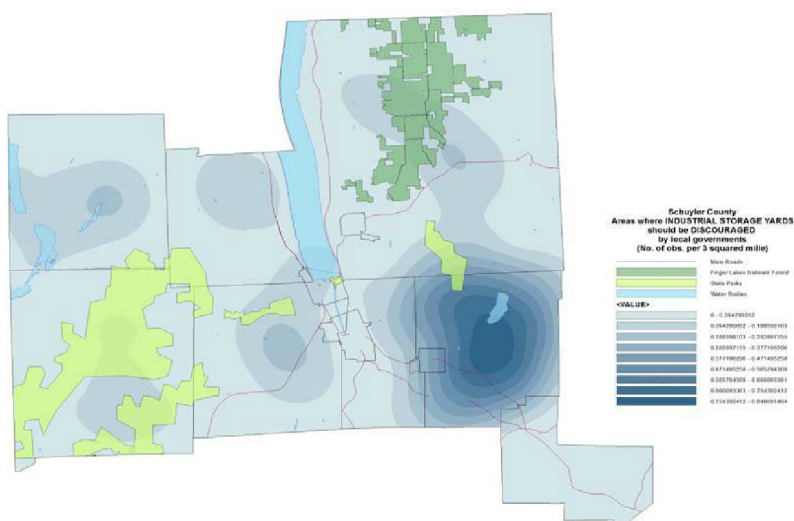


Figure G2. Schuyler County, areas where industrial storage yards should be discouraged by local governments. Darker regions indicate that more survey respondents' answers fall within that area.

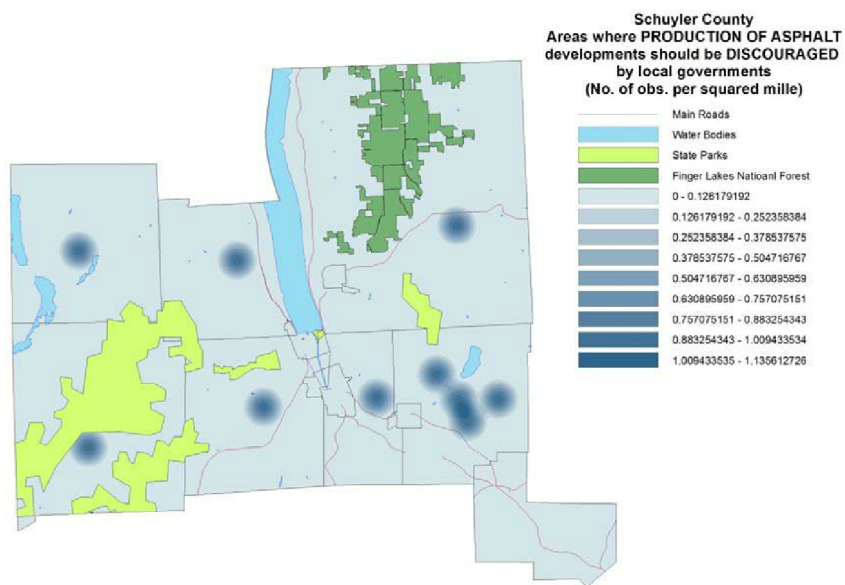


Figure G3. Schuyler County, areas where production of asphalt should be discouraged by local governments. Darker regions indicate that more survey respondents' answers fall within that area.

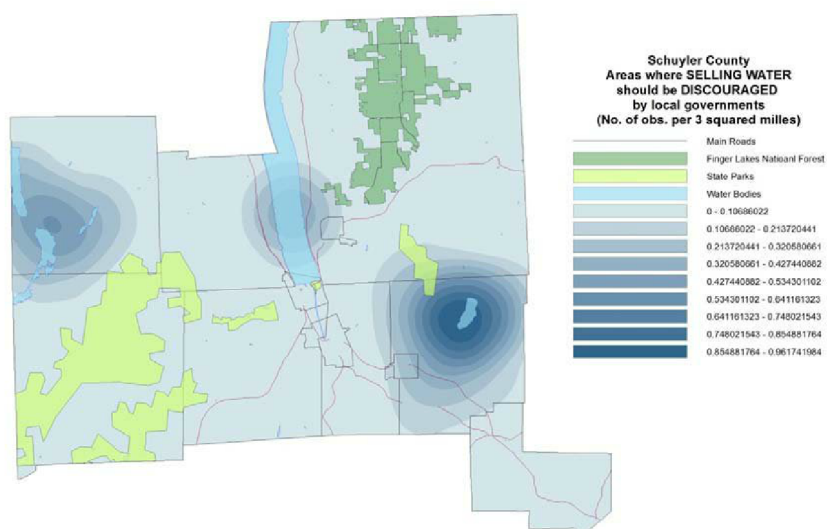


Figure G4. Schuyler County, areas where water sales should be discouraged by local governments. Darker regions indicate that more survey respondents' answers fall within that area.

Appendix HContingency table on urban-rural background and attitudes towards land use developments

Residents' responses to wind farms companies' offers		Urban raised (n=2)	Rural Raised (n=12)
Reject the offer		2	1
I would think about it			10
Accept it immediately			1
Residents' responses to natural-gas-drilling companies' offers		Urban raised	Rural Raised
Reject the offer		2	8
I would think about it			4
Accept it immediately			0
In residents' views, land use developments associated to the energy industry should be			
Discouraged by local governments		2	3
Encouraged by local governments			2
Neither of them, but regulated by LGs			6
No response			1
Residents' attitude towards certain developments		Urban raised	Rural Raised
<u>Mobile home areas</u>	Encouraged	0	6
	Discouraged	2	2
	Non response		4
<u>Drilling</u>	Encouraged	0	3
	Discouraged	2	7
	Non response		2
<u>Industrial storage yards</u>	Encouraged	0	4
	Discouraged	2	7
	Non response		1
<u>Production of asphalt</u>	Encouraged	0	4
	Discouraged	2	7
	Non response		1
<u>Parking</u>	Encouraged	0	6
	Discouraged	2	2
	Non response		4
<u>Roads</u>	Encouraged	0	8
	Discouraged	2	2
	Non response		2
<u>Selling water</u>	Encouraged	0	3
	Discouraged	2	7
	Non response		2